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Ruffa

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(54) **FIBER OPTIC TEMPERATURE MEASUREMENT SYSTEM AND METHOD**

(75) Inventor: **Anthony A. Ruffa**, Hope Valley, RI (US)

(73) Assignee: **The United States of America as represented by the Secretary of the Navy**, Washington, DC (US)

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Primary Examiner—Diego Gutierrez
Assistant Examiner—Lydia M. De Jesús
(74) *Attorney, Agent, or Firm*—James M. Kasischke; Michael F. Oglo; Jean-Paul A. Nasser

(57) **ABSTRACT**

A system and method is provided for determining the temperature to which a structure is subjected. An optical fiber having at least one pair of fiber sensors is attached to the structure. The fiber sensors comprise Bragg gratings and each is configured to have a particular coefficient of thermal expansion and be responsive to a particular wavelength. A broadband spectrum of light is launched into the optical fiber. The light returning from the fiber sensors is detected. The temperature to which the structure is subjected is then determined based on the difference in strain response of the fiber sensors as a result of the effects of temperature upon the fiber sensors. Coatings of different materials may be applied over the optical fiber to provide the fiber sensors with differing coefficients of thermal expansion.

6 Claims, 1 Drawing Sheet